

AMENDMENTS TO THE DRAWINGS

Attached with this response is one (1) replacement drawing sheet, which contains corrected Fig. 6. This drawing sheet is submitted to comply with the requirements of 37 C.F.R. 1.84(p)(5), and to bring the originally submitted drawings into conformity with the description of the application.

ATTACHMENT: One (1) Drawing sheet No. 10/13

REMARKS

Reconsideration of the subject application as amended herein is respectfully requested.

DRAWINGS CORRECTION

Fig. 6 of the drawings has been amended to include reference sign "70" mentioned on page 24, line 18 of the description as requested by the Examiner.

SPECIFICATION AND CLAIMS CORRECTIONS.

The specification and claims have been amended to correct the informalities noted by the Examiner.

Claims 1-13 stand rejected as being obvious over Nakayama in view of Shinsuke. Claims 14, 15 and 17 stand rejected as being anticipated by Shinsuke or Hiroshi. Claim 16 stands rejected as being obvious over Shinsuke in view of Nakayama. Claim 18 stands rejected as being obvious over Hiroshi in view of Yamashita.

The Applicants respectfully traverse these rejections.

Briefly, the subject application pertains to an apparatus that incorporates a device capable of reading and writing data from and to a special optical disc having data on both sides. (For the sake of simplicity, in the following discussion, reading data from the special disc is discussed, however it should be

understood that data can be written on the special disc in the same manner.) Previous optical discs had data arranged along a spiral oriented in the same direction on both sides. Typically data could be read from only one side of the disc or other. In other words, a normal disc drive can read one side of a disc or the other, but not both, unless the disc is turned over. The present inventors have invented a completely different disc, one that has data along a clockwise spiral on one side and a counterclockwise spiral on the other. This is a completely different kind of disc and so a standard disc drive can read only one of its sides (the one with the data arranged along a counterclockwise spiral) and not the other. Therefore a completely new type of disc drive (or player) has to be devised. This new device has two read heads that can read the respective side of a drive a continuous fashion. In order to accentuate this point, the claims have been amended to describe the disc and to recite that data is received from the two read heads in a continuous data stream.

A further improvement of the apparatus is that one of the heads is disposed in a housing and oriented so that it is facing one of the surfaces of the disc. Importantly a second head is mounted on a tray (usually below the disc) and oriented to read the other side of the disc. The arrangement of having one head in the tray and one head in the housing provides some savings in manufacturing, design, etc.

Nakayama discloses a disc drive having a tray for holding a standard disc and a single head mounted on the tray and disposed under the disc. As with all similar devices, the drive cannot read the other side of the disc

unless the disc is turned over.

Shinsuke discloses a disc drive that reads both sides of a standard disc using two different heads and special electronic circuitry. The drive operates as follows. A standard disc is inserted into the drive, between two stationary heads 13. The disc is then rotated on a spindle by a motor 10. One of the heads 13 reads data on the respective side in the conventional manner. The data is then fed to a microprocessor. The other head reads the side of the disc backwards. More particularly, a predetermined number of data bytes are read from the disc in reverse order. A special device 16 then reverses the order of these data bytes. Thus, the drive cannot read from the second side (in the configuration shown in the reference, the bottom side) in a continuous stream. Instead, the data must be read in chunks of bytes so that the order of data bytes of each chunk can be reversed.

Hiroshi discloses an opto-magnetic device that reads information from two sides using heads positioned exactly at the same radial distance. The Examiner cites Hiroshi for teaching a double headed drive unit with open spaces between the heads and the disc. There is nothing in this reference about data arranged in clockwise and counterclockwise spiral patterns. There is nothing in this reference that discloses how a device is to be made with a removable tray for carrying. There is nothing in this reference about how to make a disc reader that can read the specific disc described herein. Finally, there is nothing in this reference that pertains to discs with spiral tracks.

All the claims define an apparatus for reading a special disc having data on both sides in oppositely wound spirals. The apparatus includes a tray for selectively inserting and removing the disc with one read (and write) head disposed on the tray and the other being incorporated into housing. The Examiner has cited one reference which only one read head and had a tray carrying the read head. Obviously this reference can read only one side of a disc at a time.

The Examiner then cites several other references with two heads for reading discs having data on the two sides. In one of these references data is arranged in an identical configuration. In another reference there is no discussion on how data is arranged. However, the bottom line is that none of these references are capable of reading a disc having data arranged in reverse spirals. Moreover, none of these references is capable of reading data randomly from two sides of the disc or a continuous manner.

The Examiner takes the position that the references render the claims obvious. The Applicants disagree. It is respectfully submitted that reading these references, a person skilled in the art is taught at most that data from a two sided disc disposed on a tray should be read either with heads disposed on the tray or heads disposed in a housing. There is nothing in these references that would point a person skilled in the art to the advantages of having one head on a tray and the other in the housing.

Accordingly, it is respectfully submitted that the subject application

is patentably distinguishable over the prior art and should be allowed.

Authorization is hereby given to charge the amount of any fee required in connection with the filing of this communication to the firm's Deposit Account No. 07-1730, Docket No. 3053-067. A duplicate copy of this page is attached for that purpose.

Respectfully submitted
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Dated: Oct. 14. 2006

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